What is claimed is:

1. A process for preparing high-functionality highly branched polyureas which comprises reacting one or more carbonates with one or more amines having at least two primary and/or secondary amino groups, at least one amine having at least three primary and/or secondary amino groups.

2. A process according to claim 1, wherein amines having two primary and/or secondary amino groups are reacted, these amines being selected from the group consisting of ethylenediamine, N-alkylethylenediamine, propylenediamine, 2,2-dimethyl-1,3-propanediamine, N-alkylpropylenediamine, butylenediamine, N-alkylbutylenediamine, pentanediamine, hexamethylenediamine, N-alkylhexamethylenediamine, heptanediamine, octanediamine, nonanediamine, decanediamine, dodecanediamine, hexadecanediamine, tolylenediamine, xylylenediamine, diaminodiphenylmethane, diaminodicyclohexylmethane, phenylenediamine, cyclohexylenediamine, bis(aminomethyl)cyclohexane, diaminodiphenyl sulfone, isophoronediamine, 2-butyl-2-ethyl-1,5-pentamethylenediamine, 2,2,4- or 2,4,4-trimethyl-1,6-hexamethylenediamine, 2-aminopropylcyclohexylamine, 3(4)-aminomethyl-1-methylcyclohexylamine, 1,4-diamino-4-methylpentane, amine-terminated polyoxyalkylene polyols (known as Jeffamines) or amine-terminated polytetramethylene glycols.

3. A process according to claim 1 or 2, wherein the at least one amine having at least three primary and/or secondary amino groups is selected from the group consisting of bis(aminoethyl)amine, bis(aminopropyl)amine, bis(aminobutyl)amine, tris(aminoethyl)amine, tris(aminopropyl)amine, tris(aminohexyl)amine, trisaminohexane, 4-aminomethyl-1,8-octamethylenediamine, trisaminononane, N-(2-aminoethyl)propanediamine, N,N´-bis(3-aminopropyl)ethylenediamine, N,N´-bis(3-aminopropyl)butanediamine, N,N,N´,N´-tetra(3-aminopropyl)ethylenediamine, N,N,N´,N´-tetra(3-aminopropyl)butanediamine, melamine, oligomeric diaminodiphenylmethanes, amine-terminated polyoxyalkylene polyols with a functionality of three or more, polyethyleneimines with a functionality of three or more or polypropyleneimines with a functionality of three or more.

4. A process according to any one of claims 1 to 3, wherein the carbonate is selected from the group consisting of ethylene carbonate, 1,2- or 1,3-propylene carbonate, diphenyl carbonate, ditolyl carbonate, dinaphthyl carbonate, ethyl phenyl carbonate,

dibenzyl carbonate, dimethyl carbonate, diethyl carbonate, dipropyl carbonate, dibutyl carbonate, diisobutyl carbonate, dipentyl carbonate, dihexyl carbonate, diheptyl carbonate, dioctyl carbonate, didecyl carbonate, and didodecyl carbonate.

5. A process according to any one of claims 1 to 4, wherein an amine or an amine mixture having an average amine functionality of from 2.1 to 10 is reacted.

6. A process according to any one of claims 1 to 5, wherein the reaction of the carbonate or carbonates with the amine or amines takes place in a solvent.

7. A process according to claim 6, wherein the solvent is selected from the group consisting of decane, dodecane, benzene, toluene, chlorobenzene, dichlorobenzene, xylene, dimethylformamide, dimethylacetamide, and solvent naphtha.

8. A process according to any one of claims 1 to 5, wherein the reaction takes place in the absence of an inert solvent.

9. High-functionality highly branched polyureas preparable by the process according to any one of claims 1 to 8.

10. Use of the high-functionality highly branched polyureas according to claim 9 as adhesion promoters and thixotropic agents and as components for preparing paints and varnishes, coatings, adhesives, sealants, castable elastomers, and foams.